

DIRECT-CURRENT TO DIRECT-CURRENT CONVERSION CONTROL  
CIRCUIT AND DIRECT-CURRENT TO DIRECT-CURRENT  
CONVERSION APPARATUS USING SAME

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ABSTRACT OF THE DISCLOSURE

10       A direct-current to direct-current conversion (DC/DC) apparatus includes a control circuit having an error amplifier for voltage control and controlling a direct-current to direct-current conversion based on a pulse width modulation control using an output of the error amplifier. The error amplifier inputs a voltage signal  
15       corresponding to an output voltage of a DC/DC result and a plurality of reference voltage signals. The DC/DC apparatus also includes a soft start capacitor to provide one of the plurality of reference voltage signals. The error amplifier amplifies a difference between the  
20       voltage signal corresponding to the output voltage of a DC/DC result and a voltage signal of a lower potential among the plurality of reference voltage signals and, based on the amplified output, carries out the pulse width modulation control. Furthermore, the control  
25       circuit includes a circuit for discharging charges corresponding to the output voltage of the DC/DC result when a power supply to the control circuit is turned off.

30       By the constitution, it is possible to easily realize power turn-on/turn-off sequence controls without requiring any special logic circuit, and thus to control rise/fall characteristics of the output voltage without depending on the load.

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